

**TABLE 4A**

**SUMMARY OF COMPOUNDS DETECTED IN GROUNDWATER  
ABOVE THE NON-RESIDENTIAL USED AQUIFER MSC**

**PHILLIPS ISLAND  
SUNOCO, INC. REFINERY  
MARCUS HOOK, PENNSYLVANIA**

**Sampling Event: February 23-25, 2000**

<b>Compound</b>	<b>No. Samples</b>	<b>No. Detections Above MSC</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Median</b>	<b>Mean</b>
<b>Volatile Organic Compounds (ug/l)</b>						
Benzene	12	2	6	50	28	28
Dichloromethane*	12	1	20	20	20	20
Methyl tertiary butyl ether	12	2	51	120	85	85
<b>Semi-volatile Organic Compounds (ug/l)</b>						
4-Methylphenol (Cresol)	12	1	220	220	220	220
Bis (2-ethylhexyl)phthalate**	12	3	12.0	33.0	22.5	19.3
<b>Metals (mg/l)</b>						
Arsenic	12	7	0.051	1.30	0.68	0.33
Cadmium	12	1	0.007	0.007	0.007	0.007
Lead	12	4	0.008	0.073	0.04	0.03

\*- Dichloromethane (methylene chloride) is a common laboratory contaminant and was detected in the equipment blanks at concentrations up to 10 ug/l.

\*\*- Bis (2-ethylhexyl) phthalate is a common laboratory contaminant and was detected in the equipment blank at concentration of 40 ug/l. Therefore, the actual presence of this compound is highly suspect.

**TABLE 4B**

**SUMMARY OF COMPOUNDS DETECTED IN GROUNDWATER  
ABOVE THE NON-RESIDENTIAL USED AQUIFER MSC**

**PHILLIPS ISLAND  
SUNOCO, INC. REFINERY  
MARCUS HOOK, PENNSYLVANIA**

**Sampling Event: April 27, 2000**

Compound	No. Samples	No. Detections Above MSC	Minimum	Maximum	Median	Mean
<b>Volatile Organic Compounds (ug/l)</b>						
Benzene	12	2	6	36	21	21
Dichloromethane	12	3	6	11	12	8
Methyl tertiary butyl ether	12	2	66	93	79	(79)
Trichloroethylene	12	1	48	48	48	48
<b>Semi-volatile Organic Compounds (ug/l)</b>						
4-Methylphenol (Cresol)	12	1	140	140	140	140
Bis (2-ethylhexyl)phthalate	12	1	40	40	40	40
<b>Metals (mg/l)</b>						
Arsenic	12	6	0.068	1.4	0.73	0.58
Cadmium	12	2	0.01	0.014	0.012	0.012
Lead	12	8	0.006	0.41	0.208	0.076
Selenium	12	12	0.1	0.18	0.14	0.12

**TABLE 4C**

**SUMMARY OF COMPOUNDS DETECTED IN SOIL PORE WATER  
ABOVE THE NON-RESIDENTIAL USED AQUIFER MSC**

**PHILLIPS ISLAND  
SUNOCO, INC. REFINERY  
MARCUS HOOK, PENNSYLVANIA**

**Sampling Event: April 27, 2000**

Compound	No. Samples	No. Detections Above MSC	Minimum	Maximum	Median	Mean
<b>Volatile Organic Compounds (ug/l)</b>						
Benzene	6	4	6	240	123	80
<b>Semi-volatile Organic Compounds (ug/l)</b>						
Bis (2-ethylhexyl)phthalate	6	4	470	3200	1835	1715
<b>Metals (mg/l)</b>						
Cadmium	6	3	0.006	0.013	0.009	0.008
Lead	6	1	0.008	0.008	0.008	0.008
Selenium	6	6	0.15	0.25	0.20	0.195

SUMMARY OF WATER SAMPLE ANALYTICAL RESULTS  
FEBRUARY 25, 2000 GROUNDWATER SAMPLING ROUND - VOCs

SUNOCO REFINERY - PHILLIPS ISLAND  
MARCUS HOOK, PENNSYLVANIA

Parameter	Non Residential Used Aquifers*	Location Sample ID	MW-40 MW-40	MW-118 MW-118	MW-137 MW-3	MW-138 MW-4	MW-138 DUP	MW-139 MW-6	MW-140 MW-2	MW-141 MW-1	MW-142 MW-11	MW-143 MW-8	MW-144 MW-9	MW-145 MW-5	MW-146 MW-10
		Sample Date Unit	2/25/00	2/25/00	2/24/00	2/24/00	2/24/00	2/24/00	2/23/00	2/23/00	2/24/00	2/24/00	2/24/00	2/24/00	2/24/00
1,1,2,2-Tetrachloroethane	3.2	UG/L	0.5 U	1 U	5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	5	UG/L	0.5 U	1 U	5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	110	UG/L	0.5 U	1 U	5 U	0.5 U	0.5 U	1 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	5	UG/L	0.5 U	1 U	5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone		UG/L	5 U	10 U	50 U	5 U	5 U	12 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	10,000	UG/L	7	8 J	50 U	4 J	3 J	12 U	4 J	28	2 J	41	21	2 J	5 J
Benzene	5	UG/L	0.5 U	50	5 U	0.5 J	0.6	1 U	3	6	1	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform		UG/L	1 U	2 U	10 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tribromomethane	10	UG/L	1 U	2 U	10 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon disulfide	4,100	UG/L	4	1 U	5 U	0.5 U	0.5 U	1 U	0.5 U	0.9	2	0.8	5	0.5 U	0.5 J
Carbon tetrachloride	5	UG/L	0.5 U	1 U	5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	3	UG/L	1 U	2 U	10 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene		UG/L	0.5 U	1 U	5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichloromethane	5	UG/L	0.8 JB	1 JB	20 B	2 B	1 B	4 B	2 B	1 U	2 B	0.6 JB	0.7 JB	0.8 JB	1 U
Ethylbenzene	700	UG/L	0.5 U	1 U	5 U	0.5 U	0.5 J	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl ethyl ketone	5,800	UG/L	5 U	10 U	50 U	5 U	5 U	12 U	5 U	9	5 U	9	5 U	5 U	5 U
Methyl tertiary butyl ether	20	UG/L	0.5 U	1 U	120	2	2	51	2	0.8	0.5 U	0.5 U	1	2	0.5 U
o-Xylene		UG/L	0.5 U	1 U	5 U	0.9	1	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethylene	5	UG/L	0.5 U	1 U	5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	1,000	UG/L	0.5 U	1 U	5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	18	0.5 U	0.5 U
trans-1,3-Dichloropropene		UG/L	0.5 U	1 U	5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethylene	5	UG/L	0.5 U	1 U	5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	2	UG/L	1 U	2 U	10 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes(Total)	10,000	UG/L	0.5 U	1 U	5 U	1	2	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Notes:

MSC = Pennsylvania Department of Environmental Protection Land Recycling Program Medium Specific Concentrations

\*Used Aquifer = total dissolved solids less than or equal to 2500

MSCs not available for every compound

UG/L = microgram per liter

U = not detected above method detection limit (MDL)

J = indicates an estimated value below MDL

B = analyte also found in blank

D = diluted

VOCs = volatile organic compounds

=exceeds MSC